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glass/fluorite in the imaging direction, respectively a triplet has the material sequence quartz glass/fluorite/quartz glass or quartz glass/lithium fluoride/quartz glass in the imaging direction.

Please replace Page 5, 2nd full paragraph, with the following clean paragraph:

If a specific DUV wavelength is then taken as the basis for calculating the DUV focus, with a penultimate element according to the present invention it is in fact possible to construct an objective to match each of a number of IR focus wavelengths. As a result, a respective IR autofocus-capable DUV objective can be described for IR wavelengths $\geq$ 760 nm, i.e. to match a plurality of possible IR laser diodes for an IR laser autofocus system.

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IN THE CLAIMS:

Please amend claims 1 -18 as follows:

1. (Amended) A DUV-capable microscope objective, comprising:

a lens group that comprises a plurality of lens elements having quartz glass and fluorite compositions, wherein the objective has a DUV focus at a DUV wavelength, $\lambda_{DUV} \geq 235$ nm, wherein the DUV focus encompasses a DUV wavelength region $\lambda_{DUV} \pm \Delta\lambda$, where $\Delta\lambda = 8$ nm, wherein the objective has an IR focus for an IR wavelength $\lambda_{IR} \geq 760$ nm at the same focal point as the DUV focus at λ_{DUV}, and wherein a penultimate lens element of the lens group comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate element is smaller than its image-side outer radius.

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2. (Amended) The objective as defined in Claim 1, wherein the penultimate lens element is a doublet, concave on both sides, and has a material sequence of quartz glass/fluorite in an imaging direction.

3. (Amended) The objective as defined in Claim 1, wherein the penultimate lens element is a diverging triplet lens, concave on both sides, and has a material sequence of quartz glass/fluorite/quartz glass in an imaging direction.

4. (Amended) The objective as defined in Claim 1, wherein the penultimate lens element is a diverging triplet lens, concave on both sides, that has a material sequence of quartz glass/lithium fluoride/quartz glass in an imaging direction.

5. (Amended) The objective as defined in Claim 1, wherein the penultimate lens element is diverging, is concave on both sides, and comprises individual lenses made of quartz glass and fluorite.

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6. (Amended) The objective as defined in Claim 2, wherein the penultimate lens element is diverging, is concave on both sides, and comprises individual lenses made of quartz glass and lithium fluoride.

7. (Amended) The objective as defined in Claim 1, wherein the objective comprises, as viewed in an imaging direction:

a converging individual first lens comprising quartz glass as a front lens element disposed closest to an object being imaged;

a converging individual second lens element comprising fluorite;

a first doublet comprising a diverging third lens comprising quartz glass and a converging fourth lens comprising fluorite;

a first triplet combined of a fifth lens comprising fluorite, a sixth lens comprising quartz glass and a seventh lens comprising fluorite;

a second triplet combined of an eighth lens comprising quartz glass and a ninth lens comprising fluorite and a tenth lens comprising quartz glass;

a converging lens group comprising one or more lenses;

and

a diverging doublet comprising a converging lens comprising quartz glass and a diverging lens comprising fluorite, wherein the penultimate lens element is diverging and is disposed between the converging lens group and the diverging doublet.

8. (Amended) The objective as defined in Claim 7, wherein the converging individual second lens and the first doublet are combined into a triplet lens having a material sequence fluorite/quartz glass/fluorite.

9. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm or in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm.

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10. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 760 nm.

11. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 825 nm.

12. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 885 nm.

13. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 905 nm.

14. (Amended) The objective as defined in Claim 8, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 780 nm.

15. (Amended) The objective as defined in Claim 7, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 785 nm.

16. (Amended) The objective as defined in Claim 8, wherein the objective has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 845 nm.

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17. (Amended) The objective as defined in Claim 1, wherein λ_{IR} has a wavelength such that 760 nm ≥ λ_{IR} ≥ 920 nm.

18. (Amended) The objective as defined in Claim 1, wherein the objective has a focal length of 1.6 mm or less.

Please add the following new claims 19-23:

19. (new) A DUV-capable microscope, comprising:

an objective comprising a plurality of lens elements, wherein the objective has a DUV focus at a DUV wavelength, λ_{DUV} ≥ 235 nm, wherein the DUV focus encompasses a DUV wavelength region λ_{DUV} ± $\Delta\lambda$, where $\Delta\lambda$ = 8 nm, wherein the objective has an IR focus for an IR wavelength λ_{IR} ≥ 760 nm at the same focal point as the DUV focus at λ_{DUV}, and wherein a penultimate lens element comprises a concave configuration on both sides, wherein an object-side outer radius of the penultimate element is smaller than its image-side outer radius; and

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an IR laser autofocus system to provide the IR wavelength λ_{IR} and auto-focussing.

20. (new) The microscope as defined in Claim 19, wherein the objective has a focal length of 1.6 mm or less.

21. (new) A microscope objective, comprising:

a converging first lens disposed closest to an object being imaged;

a converging second lens disposed along an optical axis after the first lens;

a first doublet lens disposed along the optical axis after the second lens;

a first triplet lens disposed along the optical axis after the first doublet lens;

a second triplet lens disposed along the optical axis after the first triplet lens;

a converging lens group comprising one or more lenses disposed along the optical axis after the second triplet lens;

a diverging penultimate lens comprising concave outer sides, wherein an object-side outer radius is smaller than an image-side outer radius disposed along the optical axis after the converging lens group; and

a diverging doublet lens disposed after the penultimate lens.

22. (new) The objective as defined in claim 21, wherein the objective has a focal length of 1.6 mm or less at a DUV wavelength, $\lambda_{DUV} \geq 235$ nm, and an IR wavelength, $\lambda_{IR} \geq 760$ nm, and wherein a numerical aperture of the objective is at least 0.8.

23. (new) The objective as defined in claim 21, wherein the objective has a DUV focus at a DUV wavelength, $\lambda_{DUV} \geq 235$ nm, wherein the DUV focus encompasses a DUV wavelength region $\lambda_{DUV} \pm \Delta\lambda$, where $\Delta\lambda = 8$ nm, wherein the objective has an IR focus for an IR wavelength $\lambda_{IR} \geq 760$ nm at the same focal point as the DUV focus at λ_{DUV}.